end of July 1992 after which payloads will be switched 'on'.

The approved outlay for the launch services for INSAT-2A and INSAT-2B is Rs. 198.30 crores all in foreign exchange.

The approved outlay for the INSAT-2A and INSAT-2B excluding launch services, is Rs. 329.94 crores out of which Rs. 63.20 crores is meant for Launch All Risk Insurance Premium for INSAT-2A, 2B and 2C, Rs. 110.83 crores for facility establishment (programme elements). The foreign exchange content for the entire project is Rs. 157.39 crores.

(c) INSAT-2A will be used for providing Telecommunications, Broadcasting and Meteorological services. A Search and Rescue Payload, which was not present in the INSAT-1 satellites has been added to INSAT-2A. This will provide an instantaneous alert in case of an emergency to vehicles carrying an 406 MHz emergency beacon. INSAT-2A also, carries six transponders in the extended C-band. These transponders will be mainly used for business communications and regional TV networking.

The design of INSAT-2A is very different from INSAT-1 satellites as INSAT-2A uses systems which have been developed in India over several years. The major distinguishing design features include (a) no deployments in transfer orbit; (b) single axis accordian type deployment for the solar array; (c) independent TT&C transmitter; (d) use of global coverage horn for on-orbit telemetry; (e) use of solid state power amplifiers in the C-band; (f) body mounted antenna for C-band reception and transmission of very High Resolution Radiometer (VHRR), Data Relay Transponder (DRT) and Satellite-Aided Search & Rescue (SAS&R) signals; (g) unique microprocessor based Attitude and Orbit Control System; (h) inclusion of Inertial reference system using Gyros; and (i) U-bus concept for power system.

(d) It is planned to start the phased switch "on" of the payloads from around end of July 1992. The satellite will be put into use after all the systems are completely tested and characterised. This will take about two to three weeks. The operational fuel-limited life is currently estimated to be about nine years.

Impact of U.S. ban on India's space Programme

2421. DR. SANJAYA SINH:
SHRI P. UPENDRA:
SHRI GURUDAS DAS GUPTA:
SHRI N. E. BALARAM:

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the two year U.S. ban on supply of materials to the I.S.R.O. would hit the country's space programme;

(b) if so, what are the details thereof; and

(c) what steps Governmnet have taken/propose to take to ensure that the country's Space Programme does not suffer?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY, DEPARTMENT OF ELECTRONICS AND DEPARTMENT OF OCEAN DEVELOPMENT AND MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI P. R. KUMARAMANGALAM): (a) and (b) Indian Space Research Organisation (ISRO) has satellite as well as launch vehicle programmes. Under launch vehicle programmes, Augmented Satellite Launch Vehicle (ASLV), Polar Satellite Launch Vehicle (PSLV) and Geosynchronous Satellite Launch vehicle (GSLV) can be listed. Under satellite programme, the Communication Satellites called Indian National Satellite (INSAT), the Remote Sensing Satellites called Indian Remote Sensing (IRS) Satellites and Low Earth orbiting ones like Stretched Rohini Satellite Series (SROSS) can be mentioned. Even though the decision of USA will affect all these programmes to some extent, all necessary advance actions have been taken to ensure that the impact is minimal.

(c) The Government has been reviewing all the implications of the ban on the approved Space Programmes during the Eighth Plan period and feels confident that with suitable adjustments, the impact of the embargo on our national space programme can be minimised. In view of the actions already taken by ISRO to guard against such contingencies, it is hoped that the ban for two years might not affect the launch vehicle or satellite programmes planned for next two years. In order to ensure that extension of embargo beyond two years will also not affect our programme, long term measures as appropriate with necessary outlays to ensure timely action for self-reliance are also underway.

Refusal of exports to ISRO by U.K.

2422. SHRI KRISHNA KUMAR BIRLA: Will the PRIME MINISTER be pleased to state:

(a) whether Government have received any communication from U.K. Government indicating that it would refuse exports to ISRO if the rocket deal with Russia violated the Missile Technology Control Regimes;

(b) if so, what are the details thereof; and

(c) what is Government's reaction thereto?

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY, DEPARTMENT OF ELECTRONICS AND DEPARTMENT OF OCEAN DEVELOPMENT AND MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI P. R. KUMARAMANGALAM): (a) No, Sir.

(b) and (c) Do not arise.

12.00 NOON

PAPERS LAID ON THE TABLE

THE DEPUTY CHAIRMAN: Papers to be laid. Mr. Thungon. (*Interruptions*). No, no, I have got a watch. I know. I have been doing this. (*Interruptions*). Chandrikaji, I know you were a Minister in Maharashtra, but you have never been in this Chair. I wish next time you come here.

Yes, Mr. Thungon.

SHRI SUBRAMANIAN SWAMY: Are you nominating a successor?

THE DEPUTY CHAIRMAN: She can come as a Vice-Chairman, why not? ... (व्यवधान) एक मिनट जरा पेपर ले करने का आप भूल जाते हैं, पहले पेपर ले हो जाते हैं, फिर सब होता है।

(1) Memorandum of Uderstanding (1992-93) between the Department of Levy Industry and National Industrial lopment Corporation.

THE MINISTER OF STATE IN THE MINISTRY OF INDUSTRY DEPARTMENT OF HEAVY INDUSTRY AND DEPARTMENT OF PUBLIC ENTERPRISES (SHRI P. K. THUNGON): Madam, I lay on the Table a copy (in English and Hindi) of the Memorandum of Understanding between the Government of India (Ministry of Industry—Department of Heavy Industry) and the National Industrial Development Corporation for the year 1992-93. [Placed in Library. *See* No. LT—2365/92]

(2) Report and Accounts (1990-91 of the Council of Scientific and Industrial Research, New Delhi and related papers.

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY, DEPARTMENT OF ELECTRONICS AND DEPARTMENT OF OCEAN DEVELOPMENT AND MINISTER OF STATE IN THE MINISTRY OF PARLIAMENTARY AFFAIRS (SHRI P. R. KUMARAMANGALAM): I lay on the Table a copy each (in English and Hindi) of the following papers:—

(i) Annual Report of the Council of Scientific and Industrial Research, New Delhi, for the year 1990-91.